

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1. (Previously Presented) A motor control apparatus supplying AC power to a motor having a plurality of motor windings, comprising:

an inverting part comprising:

 a bridge circuit having a plurality of first and second switching units, and supplying the AC power to the motor;

 brake relays short circuiting the motor windings by turning on when the motor brakes;

 brake resistors, respectively, connected to the plurality of motor windings and consuming an overcurrent generated by the motor when the brake relays short circuit the plurality of motor windings; and

 a switching controller directly turning on and turning off one of the first and second switching units provided in respective opposite ends of the inverting part so that the overcurrent consumed by the brake resistors is changeable in proportion to a rotation speed of the motor, when the brake relays short circuit the plurality of motor windings,

 wherein the overcurrent consumed by the brake resistors is changed in proportion to a duty cycle of the first and second switching units turned on and turned off by the switching controller.

2. (Cancelled)

3. (Previously Presented) The motor control apparatus according to claim 1, further comprising:

 a speed detecting part detecting the rotation speed of the motor, wherein the switching controller turns on and turns off the first and second switching units so that the duty cycle of one of the first and second switching units is in proportion to the rotation speed of the motor detected by the speed detecting part.

4. (Original) The motor control apparatus according to claim 1, wherein each of the first and second switching units of the inverting part comprises:

a transistor; and
a diode connected in parallel to the transistor.

5-6. (Cancelled)

7. (Previously Presented) A control method of a motor control apparatus having an inverting part comprising a bridge circuit including a plurality of first and second switching units, and supplying AC power to a plurality of motor windings of a motor, and brake resistors connected to the plurality of motor windings and consuming an overcurrent generated from the motor when the motor brakes, comprising:

braking the motor by short circuiting the plurality of motor windings; and

directly turning on and turning off one of the first and second switching units provided in respective opposite ends of the inverting part so that the overcurrent consumed by the brake resistors is changeable according to a rotation speed of the motor,

wherein the overcurrent consumed by the brake resistors is changed in proportion to a duty cycle of the one of the first and second the switching units turned on and turned off.

8. (Cancelled)

9. (Previously Presented) The control method of the motor control apparatus according to claim 7, further comprising:

detecting the rotation speed of the motor, wherein turning on and turning off the one of the first and second switching units comprises:

turning on and turning off the first and second switching units according to the duty cycle changed in proportion to the detected rotation speed of the motor.

10-12. (Cancelled)

13. (Previously Presented) A motor control apparatus supplying power to a motor having a plurality of motor windings, comprising:

a plurality of switching units to supply AC power to the motor;
brake resistors, respectively, connected to the plurality of motor windings to exhaust
power from an overcurrent generated by the motor; and
a controller to directly control selected ones of the plurality of switching units so that the
power exhausted by the brake resistors corresponds to a rotation speed of the motor,
wherein the overcurrent consumed by the brake resistors is changed in proportion to a
duty cycle of the switching units turned on and turned off by the controller.

14. (Cancelled)

15. (Previously Presented) The motor control apparatus according to claim 13,
further comprising:

a speed detecting part detecting the rotation speed of the motor, wherein the switching
controller turns on and turns off the switching units in accordance with the rotation speed of the
motor.

16. (Original) The motor control apparatus according to claim 15, wherein the
plurality of switching units comprises:

a first plurality of switching units and a second plurality of switching units connected,
respectively, in parallel to supply the AC power to the motor, wherein the controller turns on and
turns off the first plurality of switching units and the second plurality of switching units so that the
duty cycle of one of the first and second switching units is in proportion to the rotation speed of
the motor detected by the speed detecting part.

17. (Original) The motor control apparatus according to claim 16, wherein each of
the first and second switching units comprises:

a transistor; and
a diode connected in parallel to the transistor.

18. (Original) The motor control apparatus according to claim 13, further comprising:
brake relays to short circuit the motor windings by turning on when the motor brakes and
to prevent the motor from rotating by an external force by being maintained on when the motor is
stopped.

19. (Original) The motor control apparatus according to claim 15, wherein the speed detecting part transmits information of the detected speed of the motor to the controller to control the selected ones of the plurality switching units to turn on and turn off by the duty cycle changed in proportion to the rotation speed of the motor.

20. (Original) The motor control apparatus according to claim 16, wherein, when one or more of the one of the first and second plurality of switching units are turned on, the overcurrent from the motor is shunted through the one or more of the one of the first and second plurality of switching units and the overcurrent flowing is reduced or eliminated through respective ones of the brake resistors connected between the one of the first and second plurality of switching units, and, when the first and second plurality of switching units are turned off, the overcurrent from the motor flows through the brake resistors and is prevented from flowing through the one of the first and second plurality of switching units.

21. (Previously Presented) The motor control apparatus according to claim 16, wherein, when the overcurrent is generated, power from the motor is consumed in the brake resistors in proportion to a time of the overcurrent flowing through the brake resistor.

22-24. (Cancelled)

25. (Original) The motor control apparatus according to claim 16, wherein the turning on and turning off of the one of the first and second switching units comprises:

when the one of the first and second switching units is turned on, shunting the overcurrent from the motor through the one of the first and second switching units and reducing or eliminating the overcurrent flowing through the brake resistors, and

when the one of the first and second switching units is turned off, flowing the overcurrent from the motor through the brake resistors and preventing the overcurrent from flowing through the one of the first and second switching units.

26-30. (Cancelled)